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GEOGRAPHIC SCHOOL BULLETINS

Published Weekly by

THE NATIONAL GEOGRAPHIC SOCIETY

(The National Geographic Society is a scientific and educational Society, wholly altruistic, incorporated as a non-commercial institution for the increase of geographic knowledge and its popular diffusion. General Headquarters, Washington 6, D. C.)

January 29, 1945. Vol. XXIII. No. 16.

1. Lingayen Gulf Landing Reverses Dark 1941 Philippine Picture
2. Explorers Reach New Frontiers Despite 1944 War Disruptions
3. Bolivia and Brazil to Benefit from Transcontinental Railroad
4. The Yanks Learn to Find Themselves on the Map
5. Geo-Graphic Brevities: Jungle Matches—Rio de Oro

BOLIVIA'S BIRDS AND BEASTS CONTRIBUTE FEATHERS AND FUR TO HIS FIESTA COSTUME

For *Carnaval* (Carnival), Bolivia's annual fiesta which ushers in Lent, this Aymará Indian is decked out in a stiffened, flaring shoulder cape of ocelot fur. The irregular black splotches on the tawny background of the fur transform his drab Sunday-best suit into a fantastic holiday costume. The feather-trimmed hat, with its arched superstructure built somewhat on the lines of a croquet wicket, adds a further festive touch. Prepared for any emergency, this hometown musician has a spare flute tucked away under his cape. In these remote Bolivian highlands, over which a railroad will someday link Atlantic and Pacific (Bulletin No. 3), music is an important part of this religious celebration. A professional band from nearby La Paz is hired if there is money enough. Local amateurs with drums and flutes produce their own music as they whirl and weave through the motions of their traditional dances.

Ewing Galloway

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HOW TEACHERS MAY OBTAIN THE BULLETINS

The Geographic School Bulletins are published weekly throughout the school year (thirty issues) and will be mailed to teachers in the United States and its possessions for one year upon receipt of 25 cents (stamps or money order); in Canada, 50 cents. Originally entered as second-class matter January 27, 1922; re-entered as of April 27, 1943, Post Office, Washington, D. C., under Act of March 3, 1879. Copyright, 1945, by National Geographic Society, Washington 6, D. C. International copyright secured. All rights reserved. Quedan reservados todos los derechos.

Lingayen Gulf Landing Reverses Dark 1941 Philippine Picture

AT LINGAYEN Gulf, where the Japs landed in force a little more than three years ago, the United States Sixth Army has now begun the liberation of Luzon, largest of the Philippines and closest of the group to Japan.

In December, 1941, shortly after the attack on Pearl Harbor, the Nipponese, then successful on all fronts, forced the Lingayen beaches. From there they started their southward march that took Manila and ended victoriously at Bataan and Corregidor.

General MacArthur has now completely reversed the situation. His landing craft rammed into the sands of Lingayen only about 100 miles from Manila. A broad valley (illustration, next page) extends all the way to the greatest objective of the Philippine campaign. Roads and a railroad lead the way.

Mountains to Right and Left, Level Land Straight Ahead

The position of Lingayen Gulf, an indentation in the west coast of Luzon, can be visualized if one pictures the northern part of the island as a hand. The gulf is formed between a thumblike peninsula on the west, and the main or "hand" portion of the island on the east.

The 25-mile-wide entrance to the gulf is marked by San Fernando Point on the east, and by Santiago Island on the west. From this spacious gateway the gulf extends about 27 miles southward, narrowing slightly in its final reaches. Low-lying land borders the southern end of the indentation.

Mountains wall the eastern or "hand" side of the gulf, contrasting with the moderate heights along most of the western or "thumb" shore. Mount Santo Tomaso, a 7,400-foot peak on the eastern side of the gulf, is an outstanding landmark. Low wooded islands fringe the western shore. Interisland channels are navigable by native craft. Typhoons sweep the gulf, usually only in the months of September and October.

The town of San Fernando is situated on the east side of the gulf at its juncture with the sea. It is the northern terminus of the Manila and Dagupan Railroad, which skirts the gulf shore between Dagupan and San Fernando. The marketing of produce from the surrounding agricultural region and the operation of rice and sugar mills were the chief peacetime business activities. The prewar population was about 20,000.

At the head, or southern end, of the gulf lie the towns of Dagupan and Lingayen, eight miles apart. Each normally had about 20,000 residents. San Fabian, first town liberated, is seven miles northeast of Dagupan. It stands directly on the shore, unlike the two larger towns, which are slightly inland.

Irregular Luzon Compares to Ohio in Size

Dagupan is situated on the Lingayen River. It developed as a road hub and trade center. The town was one of the strongholds of the insurgents led by Aguinaldo, and was captured by United States troops in November, 1899.

Lingayen is situated on a low and fertile island in the delta of the Agno River. Founded by the Augustine Order in the 16th century, it had many stone buildings. Coast and interior roads provide communications for inland commerce. The nearest rail service is at Dagupan.

The island of Luzon, with 40,420 square miles, is only slightly smaller than

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Rudolph E. V. Roesler de Villiers

FUMING PARICUTÍN, TO THESE TARASCANS A LITTLE-UNDERSTOOD STROKE OF BIBLICAL PROPORTIONS, DRIVES ALL LIFE BEFORE IT

Hurrying across a waste of sifted ash that before the volcanic visitation was a productive farm, these refugees from Mexico's Paricutín village seem to personify the question, "Little men, what now?" Their homeland, 200 miles west of Mexico City, was turned overnight (February, 1943) into a Gustave Doréesque nightmare of earthquake, poisoned air, encroaching lava, and all-obliterating smoke and ash. Several expeditions are now in the area, studying this first volcano to be born in the view of science (Bulletin No. 2).

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Explorers Reach New Frontiers Despite 1944 War Disruptions

DESPITE wartime difficulties in 1944, man was able to extend his exploration of world frontiers and to expand his knowledge of the prehistoric past.

The sixth National Geographic Society-Smithsonian Institution Expedition did both. It ascended the Rio de las Playas, a tributary of Mexico's Tonalá River, found the ruins of two ancient cities, and explored one of the least-known sections of Mexico. This area, where the states of Veracruz, Oaxaca, Chiapas, and Tabasco almost join, is entirely uninhabited.

One of the ruins, consisting of about thirty house mounds, proved to be of early colonial age; the other, a large and important site, is prehistoric. Named by the expedition "Ceiba Grande" (illustration, next page), the second site included high pyramidal mounds and embankments, and a ceremonial ball court where a type of basketball was played. All of its structures are faced with stone, and the court is paved with native sandstone. This ruin is in a region heretofore unknown to archeology. It is at the western border of the ancient Maya territory.

Northwest Passage Threaded for Third Time

The expedition also examined several shell mounds on the Tabasco coast. They contained rectangular cement-covered burial platforms decorated with animal friezes in relief. Also revealed were beautiful pottery and fine ornaments of jade and shell used as burial offerings.

The famous Northwest Passage, between the Atlantic and Pacific oceans north of the continent of North America, was traversed during 1944 for the third time in history, and in the briefest voyage. The trip from Halifax, Nova Scotia, to Vancouver, British Columbia, was made in 86 days by the patrol boat *St. Roch* of the Royal Canadian Mounted Police. By contrast, the Pacific-to-Atlantic voyage of the same boat which began in 1940 required 28 months. The only other craft to make the passage was the *Gjoa* of Roald Amundsen which took three years (1903-06) to make the east-west voyage from Baffin Bay to Nome, Alaska.

The 1944 voyage was from Baffin Bay through Lancaster Sound, Barrow Strait, and Melville Sound; thence southwestward through Prince of Wales Strait, Amundsen Gulf, and Beaufort Sea to Herschel Island in Mackenzie Bay. From the island the boat rounded Alaska into Bering Sea and on into the Pacific.

When Paricutín, the new Mexican volcano (illustration, inside cover), burst upward from a cornfield it set several expeditions in motion, among them that of the University of Michigan and the Cranbrook Institute of Science; and that of the Chicago Natural History Museum. The Michigan-Cranbrook party made investigations of the effect of volcano ash on vegetation.

German Bombs Do Work of Archeologist's Spade

Razed by Genghis Khan, a city long lost to view was brought to light in excavations under a power-station site in Asiatic Russia. Skulls found in tombs of the Tamerlane dynasty in Samarkand gave information for a sculptural restoration of the great Mongol leader, his son and grandson.

German bombs, rather than British spades, laid bare the only complete Norman chimney in England. Bombed almshouses in Exeter yielded tessellated Roman floors hidden by later construction.

The story of settled communities in northern Iraq was carried back to the

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Ohio. Unlike the rectangular Buckeye State, Luzon has an irregular, almost octopuslike shape. Most of it is mountainous. Ranges which bracket the highly developed valley between Lingayen and Manila tend to confine large-scale action to its flat, cultivated expanses. This was the case three years ago until the United States and Filipino armies decided on their last-ditch stand in mountain-strewn Bataan.

Note: The Philippine Islands are shown on the National Geographic Society's Map of Southeast Asia and Pacific Islands. A price list of maps may be obtained from the Society's headquarters, Washington 6, D. C.

See also, "Mindanao, on the Road to Tokyo," and "Camera Cruising in the Philippines" in the November, 1944, issue of the *National Geographic Magazine;* "Facts about the Philippines," February, 1942*; and "Unexplored Philippines from the Air," September, 1930*; and these *Geographic School Bulletins*: "Luzon, Head Island of the Philippines," December 6, 1944; and "New War Chapter Opens in the Philippines," November 6, 1944. *(Issues marked with an asterisk are included in a special list of Magazines available to teachers in packets of ten for $1.00.)*

Bulletin No. 1, January 29, 1945.

George W. Goddard

THIS MOUNTAIN SENTINEL MARKS THE WAY FROM LINGAYEN TO MANILA

Rising in the middle of the broad lowland strip that runs almost uninterruptedly from the original Luzon landing beaches to Manila and beyond, Mount Arayat seems to be drawing a patchwork quilt of valley farmlands up to its forested head. This central Luzon plain is the most intensely cultivated section of the island, and it supports the heaviest population. It normally produced great quantities of rice and sugar. The Japs are reported to have turned the sugar-growing land over to cotton cultivation.

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Bolivia and Brazil to Benefit from Transcontinental Railroad

INDUSTRY in Bolivia, sharing to some extent in the boom created by United Nations war needs, looks to 1947 for its greatest stimulation. Scheduled for completion in that year is a South American transcontinental railroad which will link the opposite-coast ports of Santos, Brazil, and Arica, Chile, and give land-locked Bolivia new means of access to the Atlantic Ocean.

Brazil, too, will benefit from the new rail connection. The land giant of South America has just about all the raw materials necessary for its expanding industrial development except large quantities of oil. By treaty rights, the output of the rich petroleum fields around Santa Cruz will be available to Brazil when the railroad reaches that east-central Bolivian city.

Unfinished Section Will Open Door to Bolivia's "Shut-in" Towns

Sections at each end of the line—from Santos on the east to Porto Esperança, Brazil, and from Arica on the west to a few miles east of Cochabamba, Bolivia—have been in operation for years. Also finished is a hundred-mile stretch from Corumbá, Brazil, across the adjacent boundary into Bolivia. At present the 58-mile gap between Porto Esperança and Corumbá lacks only 17 miles of being closed. Until the rails join, the Paraguay River will serve the two terminals.

The completed sections constitute two-thirds of the eventual 2,300-mile steel roadway, which will be South America's longest individual line. Crossing the waist of the continent, this route, when its 600-mile middle link is completed, will be more than 1,400 miles longer than the 900-mile line connecting Buenos Aires, Argentina, and Valparaiso, Chile, and 500 miles longer than the roundabout Buenos Aires-Antofagasta, Chile, route—at present the only coast-to-coast rail lines.

The projected middle section of the Santos-Arica route, lying entirely within Bolivia, will set up new outlets for the natural resources of that inland republic. Its oil, tin, and rubber will reach foreign markets more readily through the Atlantic ports of Santos and Rio de Janeiro. Now Bolivia has direct railroad access to the Pacific Ocean at Arica and Antofagasta, Chile, and to the Atlantic at Buenos Aires. The opening of new markets is counted on to stimulate trade and industry in Bolivian towns now isolated from the world.

Third-largest South American republic, Bolivia has an area of about 510,000 square miles. In this state—equal to the combined areas of Utah, Washington, Oregon, California, and Nevada—live about 3,300,000 people—less than the population of Chicago. At least 80 per cent of the people live at altitudes of more than 10,000 feet. More than 50 per cent of the population are Indians. On the altiplano, Bolivia's high central plateau, live the Quichuas, who founded the Inca race, and the Aymarás (illustration, cover), remnants of an earlier civilization.

Tin Mines of Oruro Will Be Served by New Route

Santa Cruz, in the rich district of the same name, is one of the biggest oil centers of Bolivia, but at present it can be reached only through the air or by a rough motor road (illustration, next page). Sugar cane, rubber, cacao, vanilla, and cereals such as corn, wheat, barley, and rice are other important products of the region. The city lies about 380 miles west of Corumbá, Brazil.

Cochabamba, Bolivia's second-largest city, is an aviation center. It is about

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new Stone Age by excavations made at Tell Hassuna, near Mosul, by the Directorate-General of Antiquities. Different levels show village plans and the layout of farming communities. Pottery and implements disclose progressive refinement from bottom to top levels. The Hassuna culture began about 5,000 B. C.

Hundreds of growing plants were brought to the United States from the Table Mountain plateau of Surinam (Netherlands Guiana) by the expedition of the New York Botanical Garden. It is planned to grow the plants in the southern part of the United States and in Central America. Aerial photographs revealed the only way up the mountain's 1,000-foot sheer rock wall.

A valuable ancient statue was saved for Greece's National Museum by a farmer. Plowing in a field near Athens, he turned up the marble figure believed to date from about the end of the 5th century B.C. Fearing the Germans would seize the statue, the farmer covered it with earth, and notified the museum.

Prehistoric tombs disclosed by the spades of an American engineering unit working near Paestum, Italy, were tentatively identified by Italian experts as part of a burial ground of Stone Age people.

Note: For additional information on archeological expeditions, see "The Geography of the Jordan," in the December, 1944, issue of the *National Geographic Magazine;* "Greece—the Birthplace of Science and Free Speech," March, 1944; "On the Trail of King Solomon's Mines," February, 1944*; "Crete, Where Sea-Kings Reigned," November, 1943*; and "La Venta's Green Stone Tigers," September, 1943*.

Bulletin No. 2, January 29, 1945.

Richard H. Stewart

THE CEIBA GRANDE MAYA RUINS WERE NAMED FOR A BIG TREE LIKE THIS

Now almost dead, this ceiba tree stands in the plaza of Chiapa de Corza, Chiapas, Mexico. It was living when Cortes first brought Spanish rule to Mexico. Another venerable member of this species, growing in an uninhabited jungle region near the Rio de las Playas, inspired the name "Ceiba Grande" for the important archeological site discovered by the 1944 National Geographic Society-Smithsonian Institution Expedition to southern Mexico. Kapok fiber comes from the seeds of the ceiba. Behind the tree stands a 16th-century fountain.

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The Yanks Learn to Find Themselves on the Map

"TEAR down all road and trail signs in areas used for Army maneuvers" was an order that came from Army headquarters several months ago. This was not intended to confuse possible enemy agents who might be lurking around. It was directed at the United States soldier himself.

The mystery of this command was cleared up by accompanying orders. Training in the use of the map and compass was to be intensified. If a soldier had to find his way in strange country without guideposts he would be forced to make greater use of these tools of location. Deficiencies in his previous training would be brought out.

During the campaigns in North Africa, Sicily, and Italy it was found that men were getting killed because they took wrong routes, wandered into enemy territory, and made other mistakes because, even with maps to follow, they had not learned how to find their way over unfamiliar, unmarked areas.

A Map Is Not Just a Picture

As part of his basic training a soldier is taught how to read a map and a compass, but it is difficult for him to acquire skill in the short time available. It is not a matter simply of learning what to do, but of overcoming certain mental obstacles to correct map reading.

Officers of the Military Training Division, Army Service Forces, found themselves up against a fairly prevalent belief that a map is just another kind of picture and a compass is a gadget tinged with Black Magic. Although most people have studied geography books containing maps, and most motorists have worn filling station maps to tatters, these uses of maps involve only a very limited kind of map reading. The motorist learns from the road map the relative locations of places on his route, and the distances between them, and needs no compass to find his way from Omaha, Nebraska, to Peoria, Illinois, along a well marked highway. Markings on a map other than place names and route numbers are as likely as not to be lightly passed over as "funny lines" put there at the map maker's whim.

A soldier must understand various kinds of maps which he will be expected to use, and the substitutes he may use for a regular printed map. These map substitutes may be sketches drawn from a map or from the actual terrain (region under consideration), aerial photographs, or photo maps which consist of photographs of the actual terrain, or overlays—tracings of the essential parts of a map.

Map Shows Landmarks of Nature and of Man

A soldier learns to recognize a map as an encyclopedia of the area it represents. The large-scale type that he uses shows the contour of the ground ("lay of the land"), the shape or outline of mountains and valleys, and the height of any given spot. It shows the location and character of streams, lakes, and swamps, and the position of forests. In addition to natural features, the works of man are marked. Lines of different colors and types indicate highways, railroads, trails, and canals. Bridges, towns, docks, and cultivated areas are shown.

As an aid to locating a place, some large-scale maps are crossed by grids—vertical and horizontal lines forming a latticework, usually of squares. These grids form a sort of built-in index. The spaces between the lines are lettered and numbered—usually with the letters across the top and bottom and the numbers down

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200 miles west of Santa Cruz in the heart of an important agricultural region. Oruro, mining and railroad hub of the nation, lies 130 miles by rail to the southwest. The city is almost completely surrounded by hills, sites of extensive tin mines. Swinging up north to La Paz, the railway then crosses the Andes Mountains before dropping down to its west-coast terminal at Arica, Chile.

Funds for the development of this international railway were provided through the terms of a treaty made in 1903 and amended in 1928 and 1929. Brazil agreed to pay Bolivia approximately $5,000,000 as compensation for Bolivia's rich rubber territory of Acre, which had been ceded by Bolivia to Brazil in 1900. In addition, Brazil agreed to lend up to about $15,000,000, receiving in turn certain oil exploitation rights in Bolivia.

The unfinished link of the railway will be the most difficult and expensive. In addition to the problem of getting rails, labor is scarce. Building this section necessitates crossing steep Andean grades as well as bridging mountain rivers—requirements which add greatly to the cost. In one stretch alone, it has been estimated that a highway could be built at one-fourth the cost of a railroad. But in spite of engineering difficulties, unfriendly Indians, and fever-infested areas, the railroad is inching forward.

Note: The route of the new connecting rail line across the Brazil-Bolivia border may be located on the Society's Map of South America, which was a supplement to the October, 1942, issue of the *National Geographic Magazine*. Air lines and railroads existing at the time of publication are shown.

Bulletin No. 3, January 29, 1945.

José N. Pierola

BULLOCKS, UNDISTURBED BY AIRPLANES, MAY BE RETIRED BY THE RAILROAD

From airplane to railroad appears to be progress in reverse, yet the coming of the transcontinental railway through Santa Cruz may transform this isolated agricultural town of Bolivia's central plains into a busy modern city. For nearly 20 years Santa Cruz has had airplane service to Cochabamba, but lack of highway and rail connection with the population centers of the highlands has kept the capital of the Department of Santa Cruz a backward country town. The lumbering bullock team drawing a crude wooden cart through the unpaved streets represents a type of transportation still common in this agricultural region east of the Andes. The tile-roofed houses with their windowless walls are characteristic of the hot-country architecture of Spanish America. Santa Cruz has an average temperature of 80 degrees Fahrenheit. Development of the region's oil fields is expected with the railroad's completion.

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Geo-Graphic Brevities

"JUNGLE MATCHES" DEFY WATER, WEAR SPECIAL-DUTY RAINCOATS

THE United States' Armed Forces have done something about the weather. A new and useful weather beater—the "jungle match"—has made its appearance in kit bags of Yanks bound for the south Pacific.

This match can withstand the saturating humidity of steaming jungles or the torrential downpours of the tropics. It can be dunked in the ocean for several hours and still ignite.

The jungle match is made by dipping an ordinary match in a special solution which encases the inflammable tip and the stick in a water-resistant "raincoat."

The processing is complicated. Since it tends to slow down normal production, only a small portion of the nation's 500-billion-a-year match output will wear the special-duty raincoats. These matches will be distributed only in war areas where weather conditions make ordinary matches useless.

The story of the match goes back to 1670 and the accidental discovery of phosphorus by a German alchemist in the city of Hamburg. By treating brown paper with phosphorus and drawing a sulphur-tipped splinter of wood through the folded paper, the "match" ignited. Matches so made were called "spunks."

The first useful friction match, however, was not "born" until 1827 when an English druggist hit upon the idea of attaching the combustible "head" to a splinter of wood with gum arabic as the adhesive agent. The match was then drawn through folded sandpaper until it ignited. These early lighters bore such names as "Lucifers" and "Congreves." In the 1830's they were sold in the United States as "loco-focos."

* * * * *

SPAIN'S RIO DE ORO A NEW UNITED STATES AIR STOP IN AFRICA

RIO DE ORO, Spain's west African desert colony where the United States has acquired commercial use of an airport, earned an evil reputation in the early days of aviation. Several flyers, forced down in this Nevada-size wilderness of sand, were robbed, held for ransom, or killed by roving bands of outlaws.

The colony extends 800 miles along the African coast south from French Morocco. It is bordered on the south and east by the Mauritania province of French West Africa and has a short northeastern frontier with Algeria. Inland it is mostly a dry, desert lowland rising to a 600-foot plateau in the northeast. Population is estimated all the way from 20,000 to 100,000 and consists principally of nomadic Berber and Arab tribes who raise cattle, sheep, and camels.

Spanish rule is administered by the Governor of the Canary Islands, which lie 60 to 250 miles offshore. Villa Cisneros, site of the airport, is home of the local vice-governor and about 500 Europeans, and is the only town of any size. Situated near the southern end of the colony's coast, it consists of a square Spanish fort, a few flat-topped white buildings, a large hangar and field (illustration, next page), and a tent settlement of natives.

Lying on a spit of land between the arm of the sea known as the Rio de Oro and the Atlantic Ocean, Villa Cisneros is an old trading center and fishing port with caravan trade inland over desert trails. Its new importance stems from its position on new intercontinental sky and sea routes.

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the sides. The position of an object may be described by giving the letter of the vertical space and the number of the crossing horizontal space in which it lies. These grids should not be confused with parallels of latitude and meridians of longitude which serve as location guides on many small-scale maps.

Except as an aid to his understanding of the war and the countries involved, the average soldier has little to do with small-scale maps such as maps of the world, of entire countries, or of large areas. A short distance on a small-scale map represents many miles on actual ground. Only a few top-ranking officers who are responsible for the planning of battles and the movement of troops and supplies actually use maps of this kind in their daily work (illustration, below). Generally speaking, the smaller the number of troops which a man commands, the larger the scale of the map he uses. For example, a corporal of a squad will use a map which shows only a few square miles of territory, with the ground features shown in great detail.

Once a soldier has learned the fundamentals of map reading, he acquires skill by practical use of his knowledge. By taking the map out on the area it covers, he learns to find his position on the map and then "line the map up" so that the printed features lie in the same direction as the actual ones. This is known as "orienting" the map to the terrain. A compass is a useful aid in this operation.

By studying a map away from the area it represents, a soldier can visualize the terrain. Notes and rough sketch maps made from his mental picture of the land will enable him to find his way without the printed map.

For additional information on the use and making of maps, see "Charting a World at War," in the *National Geographic Magazine* for November, 1944; "The Making of Military Maps," June, 1943; and "Maps for Victory," May, 1942*.

Bulletin No. 4, January 29, 1945.

Acme, U. S. Army Official

LONG RANGE WAR PLANS ARE MADE ON A NATIONAL GEOGRAPHIC SOCIETY MAP

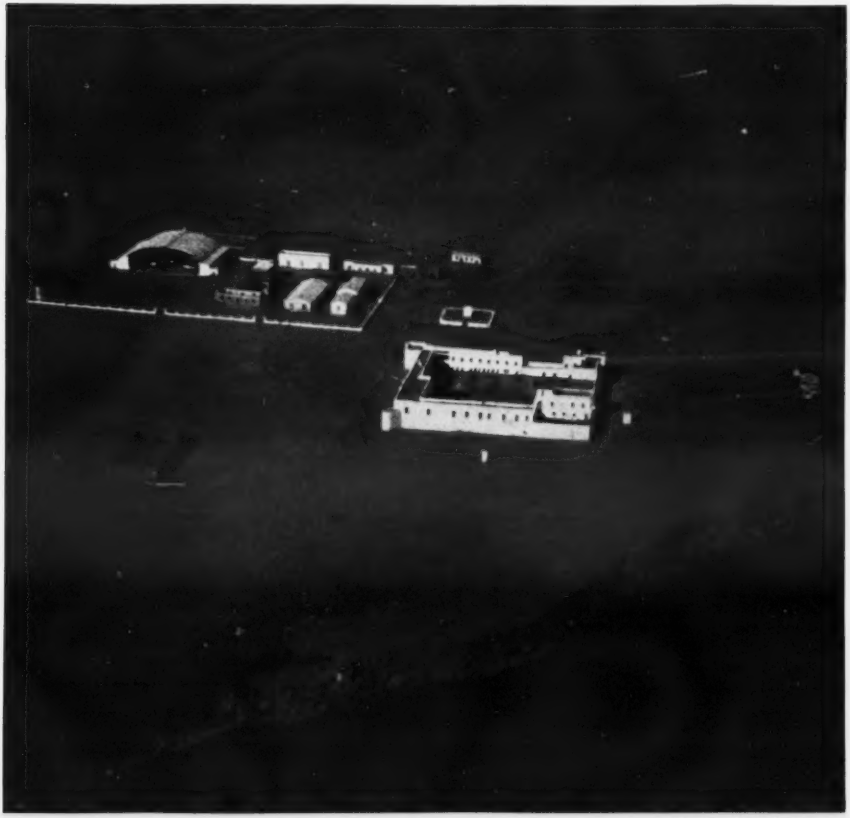
Europe and the Near East lie in one complete picture before the eyes of Secretary Stimson and General Marshall. A "G. I.'s" map reading is quite different. He uses large-scale (small area) maps instead of the small-scale (large area) variety. With a map of a given small area, a soldier is taught by the Military Training Division of the Army Service Forces to find his way by matching the printed map with the landmarks of the actual terrain. Maps furnished him show to the smallest detail all roads and paths, houses and buildings, swamps, forests, mountains, hills, and rivers.

Fish is the colony's only notable export. There is no river of gold: the Rio de Oro is not a river but a 16-mile-long bay named by Portuguese traders five centuries ago, when they bartered for gold dust with the natives and envisioned a river reaching across Africa from the Nile. Except in the rainy season, between June and October, the rivers are dry beds. There is a plant for distilling fresh water from the sea at Cabo Yubi, and drinking water also is brought from the Canary Islands.

The largest of Spain's outlying possessions, Rio de Oro was long known by the name Spanish Sahara. The Tropic of Cancer passes through the southern half of the colony. Temperatures at Villa Cisneros vary between extremes of 48 and 86 degrees Fahrenheit, winter and summer, while inland the thermometer climbs to 120 degrees.

Note: Rio de Oro is shown on the Society's Map of Africa, which was issued as a supplement to the *National Geographic Magazine* for February, 1943.

Bulletin No. 5, January 29, 1945.



Walter Mittelholzer

THE BLEAK VILLA CISNEROS AIRPORT CLINGS TO AFRICA'S WESTERN RIM

A Beau Geste type of fort stands between the sea and the enclosure containing the hangar and administration buildings. Recently signed agreements give United States planes the right to use this airport. The near-by settlement of Villa Cisneros is the capital of the sprawling Spanish colony of Rio de Oro, which stretches 800 miles along the Atlantic between French Morocco and French West Africa. Here the Sahara meets the sea. The late Antoine de St. Exupéry, French novelist and pioneer airman, described in one of his books the dangers of flying along this forbidding coast.

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